



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES
APPEAL BRIEF FOR THE APPELLANTS
Ex parte Taylor et al.

Applicant: Thomas Ronald Taylor et al.)
Serial No. 10/023,900) Art Unit: 2877
Filed: December 21, 2001) Examiner: Nguyen, Sang H
For: BORE SCOPE WITH TEST LIGHT)


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P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith are three copies (3) of an Appeal Brief and a check for the official fee for the Appeal Brief, in the amount of Three Hundred and Thirty Dollars (\$330.00). The brief was due on December 22, 2003. A petition for a two month extension of time along with the requisite fee of Four hundred and Twenty Dollars (\$420.00) is submitted herewith extending the time for response to February 22, 2004. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036.

Respectfully submitted,

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BRIEF ON APPEAL

I. INTRODUCTION

This is an appeal from the final Office Action dated July 22, 2003. A Notice of Appeal was filed on October 22, 2003. Submitted herewith is a petition for a two month extension of time along with the requisite fee extending the time for response to February 22, 2004.

II. REAL PARTY IN INTEREST

The Real Party in Interest in the present application is SPX Corporation by way of an assignment.

III. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences known to the appellants, appellants' representatives or assignee, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

IV. STATUS OF THE CLAIMS

Claims 1-20 are pending in the application. Claim 1 is an independent claim upon which claims 2-7 ultimately depend. Claim 8 is an independent claim upon which claims 9-14 ultimately depend. Claim 15 is an independent claim upon which claims 16-20 ultimately depend.

Claims 1, 3, 6, 8, 9, 11, 15-16, 18 and 20 were rejected under 35 U.S.C. §102(b) as being anticipated by Hara et al. (U.S. Patent No. 5,078,150).

Claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 were rejected under 35 U.S.C. §103(a) as being unpatentable over Hara et al. in view of Lobb et al. (U.S. Patent No. 5,045,936) and Tamburrino (U.S. Patent No. 5,202,758).

The claims on appeal, Claims 1-20, are set forth in the attached Appendix 1.

V. STATUS OF THE AMENDMENTS

The Amendment submitted on April 18, 2003 was entered amending claims 1, 3, 6, 8, 11 and 15-20.

In response to this amendment, a final Office Action dated July 22, 2003 was issued finally rejecting claims 1, 3, 6, 8, 9, 11, 15-16, 18 and 20 under 35 U.S.C. §102(b) as being anticipated by Hara et al. (U.S. Patent No. 5,078,150) and claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 under 35 U.S.C. §103(a) as being unpatentable over Hara et al. in view of Lobb et al. (U.S. Patent No. 5,045,936) and Tamburrino (U.S. Patent No. 5,202,758).

An Advisory Action dated September 24, 2003 was issued stating the Request for Reconsideration filed on August 22, 2003 was considered, but was not found to be persuasive. No amendments were made in the Request for Reconsideration.

A Notice of Appeal was filed on October 22, 2003.

VI. SUMMARY OF THE INVENTION

A. Related Art Problems Overcome by the Invention

To detect leaks in closed systems, such as air-conditioning, cooling, engine oil and transmission systems, fluorescent dyes have been developed for leak detection. These fluorescent dyes are used extensively in locating leaks of fluids, such as refrigerant, engine oil, transmission fluid, brake fluid, and gasoline, in automobile systems. To use these dyes, they are introduced into the system to be tested in order to mix with the fluid in the system. When the system is operated the fluorescent dye will seep out of any leaks in the system making it visible under a blue/black light.

The blue/black light used in detecting the leaking fluorescent dye is typically a drop light or flashlight fitted with a blue/black light bulb. By shining the blue/black light on the fluid conduits, any dye that has leaked out of the system will fluoresce making the leaks readily apparent. The leaking conduit can then be repaired. Notwithstanding the use of these leak dyes, identification of many leaks still require considerable labor effort in order to make the required visual inspection. For example, leaks in the heater core of an automobile cooling system typically requires that the dashboard be dismantled to make a visual inspection.

B. Object of the invention

The invention of the present application provides a device that will permit ultraviolet light to be delivered to objects in hidden locations, *e.g.*, objects located around, behind, above, inside, etc. other objects, and allow leaks to be viewed without having to dismantle portions of

the equipment. This is accomplished in one embodiment of the invention by having a flexible viewing scope located at a first end of a fiber optic cable and an eyepiece and a light located at a second end of the fiber optic cable. This will provide a compact device as described on page 7 paragraph 23 of the specification of the present application.

C. The claimed invention

1. Independent Claim 1

Independent claim 1 is a flexible viewing scope apparatus (see FIG. 1, element 10) which includes a flexible viewing scope (FIG. 1, element 22) connected to a first end of a fiber optic cable (FIG. 1, element 20); an eyepiece having an eyepiece lens (FIG. 1, element 14) connected to a second end of said fiber optic cable (FIG. 1, element 20); and a source of ultraviolet light provided at the second end of said fiber optic cable (FIG. 1, element 20 and paragraph 23 of the present application). The fiber optic cable is encased in a flexible arm (see paragraph 17 of the present application).

2. Dependent claims 2-7

Dependent claim 2 is dependent on claim 1 and further includes a white light source provided at the second end of the fiber optic cable.

Dependent claim 3 is dependent on claim 2 and defines the eyepiece as be able to be focused.

Dependent claim 4 is dependent on claim 3 and further includes a switch for tuning the ultraviolet light source on and off.

Dependent claim 5 is dependent on claim 1 and defines the ultraviolet light source is a blue LED.

Dependent claim 6 is dependent on claim 5 and further defines the eyepiece being able to be focused.

Dependent claim 7 is dependent on claim 6 and further includes a switch for turning the ultraviolet light source on and off.

3. Independent claim 8

Independent claim 8 is a method of leak detection, which includes the steps of illuminating an object with an ultraviolet light; viewing the object through an eyepiece having an eyepiece lens with a flexible viewing scope through a fiber optic cable connected at a first end to the flexible viewing scope and at a second end to said eyepiece.

4. Dependent claims 9-14

Dependent claim 9 is dependent on claim 8 and further includes the feature of the fiber optic cable being encased in a flexible housing.

Dependent claim 10 is dependent on claim 9 and further includes the step of illuminating the object with a white light.

Dependent claim 11 is dependent on claim 9 and further includes the step of adjusting the focus of the eyepiece.

Dependent claim 12 is dependent on claim 8 and further defines the ultraviolet light as being generated by a blue LED.

Dependent claim 13 is dependent on claim 12 and further defines the fiber optic cable as being encased in a flexible housing.

Dependent claim 14 is dependent on claim 12 and further includes the step of illuminating the object with a white light.

5. Independent claim 15

Independent claim 15 is a flexible viewing scope apparatus, that includes a means for illuminating an object with an ultraviolet light; and a means for viewing the object through an eyepiece having an eyepiece lens with a flexible viewing scope through a fiber optic cable connected at a first end to the flexible viewing scope and at a second end to said eyepiece.

6. Dependent claims 16-20

Dependent claim 16 is dependent on claim 15 and further defines the fiber optic cable as being encased in a flexible housing.

Dependent claim 17 is dependent on claim 16 and further includes a means for illuminating the object with a white light.

Dependent claim 18 is dependent on claim 16 and further includes a means for adjusting the focus of the eye piece.

Dependent claim 19 is dependent on claim 15 and further defines the ultraviolet light being generated by a blue LED.

Dependent claim 20 is dependent on claim 19 and further defines the fiber optic cable as being encased in a flexible housing.

VII. ISSUES

A. Whether claims 1, 3, 6, 8, 9, 11, 15-16, 18 and 20 are anticipated by Hara et al. (U.S. Patent No. 5,078,150) under 35 U.S.C. §102(b).

B. Whether claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 are obvious in view of Hara et al. in view of Lobb et al. (U.S. Patent No. 5,045,936) and Tamburrino (U.S. Patent No. 5,202,758) under 35 U.S.C. §103.

VIII. GROUPING OF CLAIMS

Each claim of this patent application is separately patentable, and upon issuance of a patent, will be entitled to a separate presumption of validity under 35 U.S.C. §282.

IX. APPELLANTS ARGUMENTS

A. Rejection of claims 1, 3, 6, 8, 9, 11, 15-16, 18 and 20 under 35 U.S.C. §102 as being anticipated by Hara et al. (U.S. Patent No. 5,078,150).

Claims 1, 3, 6, 8, 9, 11, 15-16, 18 and 20 were rejected under 35 U.S.C. §102 as being anticipated by Hara et al. The following is stated in the outstanding Office Action:

Regarding claim 1, 3, 6 8-9, 11, 13, 15-16, 18, and 20; Hara et al. discloses a fiberscope/borescope apparatus (91 of figure 12) comprising:

* a flexible viewing scope is considered to be a rigid tip section (9 of figure 3) connected to a first end (figures 3 and 12) of a fiber optic cable (12,13 of figure 3 and col. 19 lines 22-27) of an elongate flexible insertable section (94 of figure 12);

* means for (CCD detector [103 of figure 12] viewing the object (202 of figure 1) through an eyepiece section (92 of figure 12) of the fiberscope (91 of figure 12) having an eyepiece lens (101 of figure 12), wherein the eye piece section (92 of figure 12) of the fiberscope (91 of figure 12) connected to a second end (figures 3 and 12) of the fiber optic cable (12,13 of figure 3 and col. 19 lines 22-27); and

* a source of ultraviolet light (3 of figure 3 and col. 11 lines 64-67) provide at the second end (figures 3 and 12) of the fiber optic cable (12,13 of figure 3 and col. 19 lines 22-27) for illuminating an object is living body (202 of figure 1), wherein the fiber optic cable (12,13 of figure 3) is encased in a flexible arm considered to be the elongate flexible insertable section (94 of figure 12). See figures 1-25.

Hara et al. fails to anticipate the invention as recited in independent claims 1, 8 and 16 of the present application as required under 35 U.S.C. §102. In order to be anticipatory under 35 U.S.C. §102, a prior art reference must have each and every feature set forth in the claims (*Akzo N.V. v. U.S. Int'l Trade Comm'n*, 808 F.2d 1471, 1 U.S.P.Q. 2d 1241 (Fed Cir. 1986)). Shannon fails to teach or suggest each and every feature set forth in claim 28.

The present invention as recited in claims 1, 8 and 16 includes an eyepiece and a source of ultraviolet light provided at the second end of said fiber optic cable. The specification of the present application on page 7 paragraph 23 states that in order provide a compact, hand held device, the light source should be compact. A compact device is provided having a flexible viewing scope located at a first end of a fiber optic cable and an eyepiece and a light located at a

second end of the fiber optic cable. This will enable light to be delivered to objects in hidden locations, *e.g.*, objects located around, behind, above, inside, etc. other objects, and allow leaks to be viewed in tight spaces without having to dismantle portions of the equipment.

Hara et al. discloses a spectral diagnosing apparatus with endoscope. FIG. 12 of Hara et al. discloses an objective lens 98 located at a first end of an image guide 99 and a eyepiece section 92 located at a second end of the image guide 99. Light is reflected from a reflecting mirror 24 through an end of a light guide 95 located at a position *away* from the second end of the image guide 99.

Hara et al. fails to disclose, teach or suggest providing a source of ultraviolet light at a second end of the fiber optic cable and an eyepiece at the second of the fiber optic cable as recited in independent claims 1, 8 and 15. By locating the eyepiece and the light source at the second end of the fiber optic cable, a compact hand held device is provided so that light will be delivered to objects in hidden locations, *e.g.*, objects located around, behind, above, inside, etc. other objects, and allow leaks to be viewed in tight spaces without having to dismantle portions of the equipment (see paragraphs 5-9 of the present application).

Hara et al. is an endoscope which is used to look into a body for diagnosing purposes. The endoscope disclosed in Hara et al. is not concerned with a compact design to be used in tight spaces. Quite to the contrary, the spectral diagnosing apparatus with endoscope disclosed in Hara et al. is a large complex apparatus used to view the inside of a body for diagnosing purposes. Hara et al. is more concerned with obtaining very accurate and detailed information from the bore scope accounting for the large size of the apparatus.

Hara et al. fails to disclose, teach or suggest providing a source of ultraviolet light at a second end of the fiber optic cable and an eyepiece at the second of the fiber optic cable as

recited in independent claims 1, 8 and 15 providing a compact design so that light will be delivered to objects in hidden locations, *e.g.*, objects located around, behind, above, inside, etc. other objects, and allow leaks to be viewed in tight spaces without having to dismantle portions of the equipment.

In view of the foregoing, it is respectfully submitted that Hara et al. fails to disclose each and every feature recited in independent claims 1, 8 and 15 of the present application as is required under 35 U.S.C. §102. It is further submitted that each of the dependent claims include subject matter recited in the independent claim and are therefore patentable over the Hara et al. for the same reasons argued with respect to the independent claims. In addition each of these dependent claims include other features not disclosed in Hara et al.

Therefore, withdrawal of the rejection of claims 1, 3, 6, 8, 9, 11, 15-16, 18 and 20 under 35 U.S.C. §102 as being anticipated by Hara et al. is respectfully requested for at least the reasons argued above.

B. Whether claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 are obvious in view of Hara et al. in view of Lobb et al. (U.S. Patent No. 5,045,936) and Tamburrino (U.S. Patent No. 5,202,758) under 35 U.S.C. §103.

Claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 were rejected under 35 U.S.C. §103 as being unpatentable over Hara et al. in view of Lobb et al. (U.S. Patent No. 5,045,936) and Tamburrino (U.S. Patent No. 5,202,758). The following is stated in the Office Action:

Regarding claims 2, 10, 14, and 17; Hara discloses all of features in claimed invention except for a white light source provide at the second end of the fiber optic. However, Tamburrino teaches that it is known in the art to provide a white light source (37 of figure 3) provide at the second end of the fiber optic (31,32 of figure 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide fiberscope apparatus and method of Hara et al. with a white light source

provide at the second end of the fiber optic as shown in the device of Tamburrino for the purpose of providing a full color video image of the object and measuring cracks or defects of the object.

Regarding claims 4 and 7; Hara et al. teaches all of features in claimed invention except for a switch for turning the ultraviolet light source on and off. However, Lobb et al. teaches that it is well known in the art to provide a switch for turning the ultraviolet light source on and off (figures 1-9). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide bore-scope apparatus and method of Hara et al. with a switch for turning the ultraviolet light source on and off as shown in the device of Lobb et al. for the purpose of adjusting light beam onto the object until a clear image of the object .

Regarding claims 5, 12, and 19; Hara et al. teaches all of features in claimed invention except for the ultraviolet light source is a blue LED. However, Tamburrino discloses that it is known in the art to provide the ultraviolet light source is a blue LED (col. 3 line 15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide fiberscope apparatus and method of Hara et al. with the ultraviolet light source is a blue LED as shown in the device of Tamburrino for the purpose of providing a full color video image of the object and measuring cracks or defects of the object.

The combination of Hara et al., Lobb et al. and Tamburrino fails to disclose, teach or suggest the invention as recited in dependent claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 of the present application as required under 35 U.S.C. §103. In order to determine obviousness or non-obviousness of patent application claims under 35 U.S.C. § 103, several basic factual inquiries must be made. These factual inquiries are set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 U.S.P.Q. 459, 467 (1996):

Under §103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined.

In rejecting claims under 35 U.S.C. §103, and Examiner bears an initial burden of presenting a *prima facie* case of obviousness. A *prima facie* case of obviousness is established only if the teachings of the prior art would have suggested the claimed subject matter to a person of ordinary skill in the art. If an Examiner fails to establish a *prima facie* case, the rejection is

improper and will be overturned. See *In re Rijckaert*, 9 F.3d 1531, 28 U.S.P.Q. 2d 1955 (Fed. Cir. 1993). “If examination ... does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to the grant of the patent.” *In re Oetiker*, 977 f.2d 1443, 1445-1446, 24 U.S.P.Q. 2d 1443, 1444 (Fed. Cir. 1992). A *prima facie* case of obviousness has not been made in that neither AAPA nor Shannon taken either alone or in combination, teach or suggest the invention as recited in claim 28 of the present application.

The present invention as recited in dependent claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 include the features recited in the independent claims 1, 8 and 15, which were rejected as being anticipated by Hara et al. Lobb et al. and Tamburrino are not cited as curing the deficiencies as argued in response to the rejection of independent claims 1, 8 and 15 as being anticipated by Hara et al. It is therefore respectfully submitted that dependent claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 are patentable over the cited references for at least the same reasons as argued in response to the rejection of independent claims 1, 8 and 15. It is further submitted that each of the dependent claims include additional features not disclosed in Hara et al., Lobb et al. and Tamburrino either taken alone or in combination.

In light of the foregoing, withdrawal of the rejection of claims 2, 4, 5, 7, 10, 12, 14, 17 and 19 under 35 U.S.C. §103 as being unpatentable over Hara et al. in view of Lobb et al. and Tamburrino is respectfully requested.

X. CONCLUSION

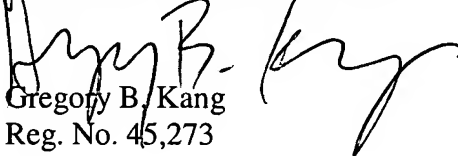
For all of the above-noted reasons, it is strongly contended that certain, clear and important distinctions exist between the present invention as recited in claims 1-20 and the cited references as provided in the Office Action. It is further contended that these distinctions are more than sufficient to render the claimed invention unobvious to a person of ordinary skill in the art at the time the invention was made.

This final rejection being in error, therefore, it is respectfully requested that this Honorable Board of Patent Appeals and Interferences reverse the Examiner's decision in this case, and indicate the allowability of claims 1-20.

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fee deficiencies or credit any overpayments to Deposit Account No. 50-2036.

Respectfully submitted,

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APPENDIX 1

1. (Previously Amended) A flexible viewing scope apparatus, comprising:

a flexible viewing scope connected to a first end of a fiber optic cable;

an eyepiece having an eyepiece lens connected to a second end of said fiber optic cable; and

a source of ultraviolet light provided at the second end of said fiber optic cable;

wherein said fiber optic cable is encased in a flexible arm.
2. (Original) The apparatus of claim 1, further comprising a white light source provided at said second end of said fiber optic cable.
3. (Previously Amended) The apparatus of claim 2, wherein said eyepiece can be focused.
4. (Original) The apparatus of claim 3, further comprising a switch for tuning the ultraviolet light source on and off.
5. (Original) The apparatus of claim 1, wherein said ultraviolet light source is a blue LED.
6. (Previously Amended) The apparatus of claim 5, wherein said eyepiece can be focused.

7. (Original) The apparatus of claim 6, further comprising a switch for turning the ultraviolet light source on and off.

8. (Previously Amended) A method of leak detection, comprising the steps of:
illuminating an object with an ultraviolet light;
viewing the object through an eyepiece having an eyepiece lens with a flexible viewing scope through a fiber optic cable connected at a first end to the flexible viewing scope and at a second end to said eyepiece.

9. (Original) The method of claim 8, wherein said fiber optic cable is encased in a flexible housing.

10. (Original) The method of claim 9, further comprising the step of illuminating the object with a white light.

11. (Previously Amended) The method of claim 9, further comprising the step of adjusting the focus of the eyepiece.

12. (Original) The method of claim 8 wherein said ultraviolet light is generated by a blue LED.

13. (Original) The method of claim 12, wherein said fiber optic cable is encased in a flexible housing.

14. (Original) The method of claim 12, further comprising the step of illuminating the object with a white light.

15. (Previously Amended) A flexible viewing scope apparatus, comprising:
means for illuminating an object with an ultraviolet light;
means for viewing the object through an eyepiece having an eyepiece lens with a flexible viewing scope through a fiber optic cable connected at a first end to the flexible viewing scope and at a second end to said eyepiece.

16. (Previously Amended) The apparatus of claim 15, wherein said fiber optic cable is encased in a flexible housing.

17. (Previously Amended) The apparatus of claim 16, further comprising means for illuminating the object with a white light.

18. (Previously Amended) The apparatus of claim 16, further comprising means for adjusting the focus of the eye piece.

19. (Previously Amended) The apparatus of claim 15 wherein said ultraviolet light is generated by a blue LED.

20. (Previously Amended) The apparatus of claim 19, wherein said fiber optic cable is encased in a flexible housing.

SOLICITORS, 87355, 03060, 100097921.1, Appeal Brief